

WHAT IS CLAIMED IS:

1. A visualization system for a computer system includes:
 - a positioning portion configured to determine a position of a viewer with respect to a virtual geographic location;
- 5 a modeling portion configured to specify the virtual geographic location in response to a three-dimensional model of the virtual geographic location;
 - a model specification portion configured to specify a representation of satellite status data in response to the position of the viewer with respect to the virtual geographic location and in response to the satellite status data; and
- 10 a three-dimensional output portion configured to provide at least two images of the virtual geographic location and the representation of the satellite status data to the viewer in response to the position of the viewer with respect to the virtual geographic location.
2. The visualization system of claim 1 wherein the positioning portion comprises:
 - 15 an image acquisition source configured to capture at least an image comprising an image of a physical location, and an image of at least a pre-determined marker;
 - an image processing portion configured to determine the position of the viewer in the physical location in response to the image of the pre-determined marker; and
- 20 a virtual positioning portion configured to translate the position of the viewer in the physical location to the position of the viewer in the virtual geographic location.
3. The visualization system of claim 1 wherein the three-dimensional model comprises a VRML model.
4. The visualization system of claim 1 wherein the representation of the satellite status data comprises a representation of selected from the group: orbit, historical position, current position, future predicted position, object trajectory, ground coverage, direction.
- 25 5. The visualization system of claim 2 wherein the three-dimensional output portion comprises a heads-up pair of glasses.
- 30 6. The visualization system of claim 2

wherein the image acquisition source is physically coupled to the heads-up pair of glasses.

7. The visualization system of claim 5 wherein the head-up pair of glasses are also configured to allow the viewer to view the physical location.

35 8. A method for a computer system comprises:

determining a position of a viewer with respect to a virtual geographic location;

determining a model of the virtual geographic location in response to a three-dimensional model of the virtual geographic location;

40 determining a representation of satellite status data in response to the position of the viewer with respect to the virtual geographic location and in response to the satellite status data; and

45 displaying to the viewer a three-dimensional representation of the virtual geographic location and the representation of the satellite status data in response to the position of the viewer with respect to the virtual geographic location.

9. The method of claim 8 wherein determining the position of the viewer comprises:

capturing with a video camera an image comprising a physical location with at least one pre-determined marker;

50 determining a position and orientation of the viewer in the physical location in response to the image; and

determining the position of the viewer in the virtual geographic location in response to the position and orientation of the viewer in the physical location.

10. The method of claim 8 wherein the three-dimensional model comprises
55 a VRML model.

11. The method of claim 8 wherein the satellite status data comprises data selected from the group: satellite orbit, historical position, current position, future predicted position, object trajectory, ground coverage, direction, status.

12. The method of claim 9 wherein displaying the three-dimensional
60 representation comprises displaying a first and a second image to the viewer with a pair of
heads-up glasses.

13. The method of claim 9 wherein the video camera is disposed upon the
pair of head-up glasses.

14. The method of claim 12 wherein the viewer views the physical
65 location at the same time as the three-dimensional representation of the virtual geographic
location.

15. A visualization method for a computer system comprises:
displaying to a viewer a three-dimensional representation of a virtual location,
a representation of the satellite status data as overlays on a physical location;

70 wherein the representation of the virtual location is determined in response to
a model of the virtual location, and in response to a position of the viewer with respect to the
model of the virtual location; and

75 wherein the representation of the satellite data is determined in response to
satellite status data, and in response to a position of the viewer with respect to the model of
the virtual location.

16. The visualization method of claim 15 wherein the position of the
viewer with respect to the model of the virtual location is determined in response to an image
of a pre-determined marker in the physical location taken from a vantage point of the viewer,
and in response to a correspondence between the virtual location and the physical location.

80 17. The visualization method of claim 15 wherein the satellite status data
comprises data selected from the group: satellite orbit, historical position, current position,
future predicted position, object trajectory, ground coverage, direction, status.

85 18. The visualization method of claim 15 wherein the three-dimensional
representation of the virtual location comprises a first image and a second image provided to
the viewer with a pair of heads-up display glasses.

19. The visualization method of claim 15 further comprising displaying a
selection of a portion of the virtual location by the viewer to the viewer;

wherein the viewer selection is determined in response to a position of a
viewer-controlled marker with respect to the model of the virtual location.

20. The visualization method of claim 19 wherein displaying the selection comprises overlaying an icon over the portion of the virtual location to the viewer.